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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/706,090	11/13/2003	Junji Sugamoto	02887.0259	7292

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EXAMINER

SMITH, BRADLEY

ART UNIT PAPER NUMBER

2891

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/706,090

Applicant(s)

SUGAMOTO ET AL.

Examiner

Bradley K. Smith

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6 and 8-34 is/are pending in the application.
- 4a) Of the above claim(s) 26-31 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6, 8-15, 22-25 and 32-34 is/are rejected.
- 7) ☒ Claim(s) 16-21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/22/05
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☒ Other: search notes

## **DETAILED ACTION**

### ***Election/Restrictions***

Claims 26-31 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/1/06.

### ***Claim Objections***

Claim 15 is objected to because of the following informalities: claim 15 discloses chronic oxide the examiner believes that the applicant is trying to claim chromic oxide. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 9, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Naruoka (US 2003/0113941). Naruoka disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring

the crystal defect into view; and quantitatively evaluating the crystal defect (see paragraph 0005). With regards to claim 15, Narouka disclose the selective etch uses chromic oxide.

Claims 6, 9, 10, 12-14, 23-24, and 32-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Barge et al. (US 2005/0208322). Barge et al. disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring the crystal defect into view; and quantitatively evaluating the crystal defect (0081-0085). With regards to claim 10, Barge et al. disclose the first solution having an oxidative agent and a second solution having HF (0082-0083). With regards to claim 12 and 13, Barge et al. disclose removing the film (contaminants and particles) (0084). With regards to claim 14, Barge et al. disclose removing the film with HF. With regards to claim 6, 32-33, Barge et al. disclose using a third solution (0084)

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8, 11, 25 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Barge et al. in view of Sato. Barge et al. disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching

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without dicing to bring the crystal defect into view; and quantitatively evaluating the crystal defect (0081-0085). However Barge et al. fails to disclose the concentration of the HF. Whereas Sato disclose a 49% solution of HF (column 25 lines 45-50). Therefore it would have been obvious to one of ordinary skill to combine the teachings of Barge et al. and Sato, because altering the concentration would be well known to those of ordinary skill in the art, and would etch the material faster.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Barge et al. in view of Chiang et al. Barge et al. disclose removing said film with a chemical solution to expose the crystal surface of the semiconductor wafer; selectively removing a surface layer of the semiconductor wafer by selective etching without dicing to bring the crystal defect into view; and quantitatively evaluating the crystal defect (0081-0085). However Barge et al. fails to disclose the use of ultrasonic waves. However Chiang disclose the use of ultrasonic waves to clean. Therefore it would have been well known in the art at the time the invention was made to combine Barge and Chiang, because the use of ultra sonic waves was well known in the art (0004 Chiang).

#### ***Allowable Subject Matter***

Claims 16-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record fails to teach making a reference image which is free of defects and comparing the image to the evaluated structure (claims 16-21).

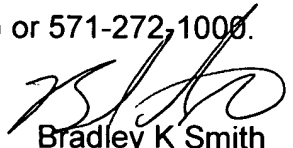
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***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bradley K. Smith whose telephone number is 571-272-1884. The examiner can normally be reached on 10-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Bradley K Smith  
Primary Examiner  
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